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Biography

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11 January 2025 in *arXiv* Preprint

Stieltjes differential systems with non monotonic derivators

MF Marlène Frigon F- Fernando Adrián Fernández -Tojo

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1 January 2025 in *Electronic Journal of Qualitative Theory of Differential Equations* Journal Article

Prolongation of solutions and Lyapunov stability for Stieltjes dynamical systems

LM Lamiae Maia NK Noha El Khattabi MF Marlène Frigon

In this article, we present Lyapunov-type results to study the stability of an equilibrium of a Stieltjes dynamical system. We utilize prolongation results to establish the global existence of the maximal solution. Using Lyapunov's second method, we establish results of stability (resp. uniform stability) and asymptotic stability (resp. asymptotic uniform stability). Finally, we present examples Show more

18 March 2018 in *Topological Methods in Nonlinear Analysis* Journal Article

Schauder's Theorem and the method of a priori bounds

AG Andrzej Granas MF Marlène Frigon

We first recall simple proofs relying on the Schauder Fixed Point Theorem of the Nonlinear Alternative, the Leray-Schauder Alternative and the Coincidence Alternative for compact maps on normed spaces. We present also an alternative for compact maps defined on convex subsets of normed spaces. Those alternatives permit to apply the method of a priori bounds to obtain results establish Show more

20 January 2018 in *Advanced Nonlinear Studies* Journal Article

Existence and Multiplicity Results for Systems of First-Order Differential Equations via the Method of Solution-Regions

MF Marlène Frigon

In this paper, we establish existence and multiplicity results for systems of first-order differential equations. To this end, we introduce the method of solution-regions. It generalizes the method of upper and lower solutions and the method of solution-tubes. Our results can also be seen as viability results since we obtain solutions remaining in suitable regions. We give conditions insuring Show more

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We set up the basic theory of existence and uniqueness of solutions for systems of differential equations with usual derivatives replaced by Stieltjes derivatives. This type of equations contains as particular cases dynamic equations on time scales and impulsive ordinary differential equations.

16 October 2015 in *Advances in Difference Equations* Journal Article

Multiplicity results for systems of first order dynamic inclusions on time scales

MF Marlène Frigon ML Maryam Lotfipour

Multiplicity results are obtained for systems of first order dynamic inclusions on time scales with the periodic boundary condition. To this aim, we introduce the notion of a strict solution-tube. We consider the case where the nonlinearity satisfies an upper semi-continuity condition. Our results are new even in the particular cases where the nonlinearity is single-valued or it has real values. Show more

26 September 2015 in *Journal of Inequalities and Applications* Journal Article

Systems of Hammerstein integral inclusions in Banach spaces with mixed monotone conditions

TD Toktam Dinevari MF Marlène Frigon

In this paper, we establish the existence of solutions to systems of Hammerstein integral inclusions under mixed monotonicity type conditions. Existence of solutions to systems of differential inclusions with initial value condition or periodic boundary value condition are also obtained. Our results rely on fixed point theorems for multivalued weak contractions on complete metric spaces endowed w Show more

20 May 2015 in *Journal of Function Spaces* Journal Article

Recent Developments on Fixed Point Theory in Function Spaces and Applications to Control and Optimization Problems

HN HEMANT NASHINE MA Mujahid Abbas MF Marlène Frigon Calogero Vetro

1 March 2015 in *Journal of Fixed Point Theory and Applications* Journal Article

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1 January 2015 in *Abstract and Applied Analysis* Journal Article

Applications of Multivalued Contractions on Graphs to Graph-Directed Iterated Function Systems

TD T. Dinevari MF Marlène Frigon

We apply a fixed point result for multivalued contractions on complete metric spaces endowed with a graph to graph-directed iterated function systems. More precisely, we construct a suitable metric space endowed with a graph$G$and a suitable$G$-contraction such that its fixed points permit us to obtain more information on the attractor of a graph-directed iterated function system. Show more

8 November 2013 in *Boundary Value Problems* Journal Article

Multiple solutions of boundary value problems with ϕ-Laplacian operators and under a Wintner-Nagumo growth condition

NK Noha El Khattabi MF Marlène Frigon NA Nourredine Ayyadi

In this paper, we establish the existence of multiple solutions to second-order differential equations with ϕ-Laplacian satisfying periodic, Dirichlet or Neumann boundary conditions. The right-hand side is a Carathéodory function satisfying a growth condition of Wintner-Nagumo type. The existence of upper and lower solutions is assumed. The proofs rely on the fixed point index theory. **MSC:** 34E Show more

17 April 2013 in *Journal of Mathematical Analysis and Applications* Journal Article

Fixed point results for multivalued contractions on a metric space with a graph

TD T. Dinevari MF Marlène Frigon

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